Exploring Aeronautics 2003 Mathematics			
Ohio Mathematics			
Grade 5	04-4-	Otomoloudo	
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	ОН	MA.5.2.A.1	Identify and select appropriate units to measure angles; i.e., degrees.
Fundamentals of Aeronautics (145-176)	ОН	MA.5.5.A.1	Read, construct and interpret frequency tables, circle graphs and line graphs.
Fundamentals of Aeronautics (145-176)	ОН	MA.5.5.B	Interpret data by looking for patterns and relationships, draw and justify conclusions, and answer related questions.
Fundamentals of		MA.5.5.C.5	Modify initial conclusions, propose and justify new interpretations and predictions as additional data are collected.
Fundamentals of Aeronautics (145-176)		MA.5.5.C.5	Determine appropriate data to be collected to answer questions posed by students or teacher, collect and display data, and clearly communicate findings.
Fundamentals of Aeronautics (145-176)		MA.5.5.G	Evaluate conjectures and predictions based upon data presented in tables and graphs, and identify misuses of statistical data and displays.
Wings(177-208)	ОН	MA.5.2.G.3	Demonstrate and describe the differences between covering the faces (surface area) and filling the interior (volume) of three-dimensional objects. Use standard language to describe line,
Airplane Control(209- 256)	ОН	MA.5.3.A.2	segment, ray, angle, skew, parallel and perpendicular.
Tools of Aeronautics(257-326)	ОН	MA.5.4.A.2	Use calculators or computers to develop patterns, and generalize them using tables and graphs.
Science of Flight	ОН	MA.5.4.K.5	Model problems with physical materials and visual representations, and use models, graphs and tables to draw conclusions and make predictions.
Science of Flight	ОН	MA.5.5.C.5	Modify initial conclusions, propose and justify new interpretations and predictions as additional data are collected.
Science of Flight	ОН	MA.5.5.E.4	Determine appropriate data to be collected to answer questions posed by students or teacher, collect and display data, and clearly communicate findings.
Integrating with Aeronautics	ОН	MA.5.1.I.13	Estimate the results of computations involving whole numbers, fractions and decimals, using a variety of strategies
Integrating with Aeronautics	ОН	MA.5.1.1.13	variety of strategies. Justify a general rule for a pattern or a function by using physical materials, visual representations, words, tables or graphs.

			Use calculators or computers to develop
Integrating with			patterns, and generalize them using tables and
Aeronautics	ОН	MA.5.4.A.2	graphs.
			Use variables as unknown quantities in general
Integrating with			rules when describing patterns and other
Aeronautics	ОН	MA.5.4.B.3	relationships.
Intograting with			Create and interpret the magning of equations
Integrating with Aeronautics	ОН	MA.5.4.C.4	Create and interpret the meaning of equations and inequalities representing problem situations.
Aeronaulics	ОП	IVIA.3.4.C.4	Use variables as unknown quantities in general
Integrating with			rules when describing patterns and other
Aeronautics	ОН	MA.5.4.E.3	relationships.
7.0101100100		1717 (.0. 1.2.0	Use variables as unknown quantities in general
Integrating with			rules when describing patterns and other
Aeronautics	ОН	MA.5.4.G.3	relationships.
			Interpret data by looking for patterns and
Integrating with			relationships, draw and justify conclusions, and
Aeronautics	ОН	MA.5.5.B	answer related questions.
			Modify initial conclusions, propose and justify
Integrating with			new interpretations and predictions as additional
Aeronautics	OH	MA.5.5.C.5	data are collected.
			Evaluate conjectures and predictions based
Integrating with			upon data presented in tables and graphs, and
Aeronautics	ОН	MA.5.5.G	identify misuses of statistical data and displays.
Intro to Aeronautics			Read, construct and interpret frequency tables,
(109-123)	ОН	MA.5.5.A.1	circle graphs and line graphs.
			Interpret data by looking for patterns and
Intro to Aeronautics		MA 5 5 D	relationships, draw and justify conclusions, and
(109-123)	ОН	MA.5.5.B	answer related questions. Model problems with physical materials and
			visual representations, and use models, graphs
Scientific Method(124-			and tables to draw conclusions and make
144)	ОН	MA.5.4.F.5	predictions.
177)	011	1417 (.0.4.1 .0	Determine appropriate data to be collected to
			answer questions posed by students or teacher,
Scientific Method(124-			collect and display data, and clearly
144)	ОН	MA.5.5.E.4	communicate findings.
		Exploring Aero	
		2003 Mathen	
Ohio Mathematics		Academic Content	t Stanuarus
Grade 6			
Activity/Lesson	State	Standards	
Fundamentals of			Read, construct and interpret line graphs, circle
Aeronautics (145-176)	ОН	MA.6.5.A.1	graphs and histograms.
			Evaluate interpretations and conclusions as
Fundamentals of			additional data are collected, modify conclusions
Aeronautics (145-176)	ОН	MA.6.5.C	and predictions, and justify new findings.
7.0.0.1dddio3 (140-170)	0.1	1417 1.0.0.0	and productions, and justify new infamigs.

			Coloot amonto and was amonto al norma contations
C. ve de ve e vetele ef			Select, create and use graphical representations
Fundamentals of		NAA C 5 5 0	that are appropriate for the type of data
Aeronautics (145-176)	ОН	MA.6.5.E.2	collected.
4			Select appropriate units to measure angles,
Airplane Control(209-			circumference, surface area, mass and volume,
256)	ОН	MA.6.2.A	using:
			Identify and label angle parts and the regions
Airplane Control(209-			defined within the plane where the angle
256)	ОН	MA.6.3.A	resides.
			Represent and compare numbers less than 0
			through familiar applications and extending the
The Resource Center	ОН	MA.6.1.A	number line.
			Evaluate interpretations and conclusions as
			additional data are collected, modify conclusions
Science of Flight	ОН	MA.6.5.C	and predictions, and justify new findings.
			Select, create and use graphical representations
			that are appropriate for the type of data
Science of Flight	ОН	MA.6.5.E.2	collected.
a second contraction and the second contraction			Represent and compare numbers less than 0
Integrating with			through familiar applications and extending the
Aeronautics	ОН	MA.6.1.A	number line.
Integrating with	011	1707 (1.01.11.7)	Compare, order and convert among fractions,
Aeronautics	ОН	MA.6.1.B	decimals and percents.
refoliatios	011	1417 (.0.1.D	Use models and pictures to relate concepts of
Integrating with			ratio, proportion and percent, including percents
Aeronautics	ОН	MA.6.1.C.5	less than 1 and greater than 100.
Integrating with	011	IVIA.0.1.C.3	Read, construct and interpret line graphs, circle
Aeronautics	ОН	MA.6.5.A.1	
Actoriautics	OH	IVIA.0.5.A. I	graphs and histograms.
			Evaluate interpretations and conclusions as
Intograting with			Evaluate interpretations and conclusions as
Integrating with		NAA G E C	additional data are collected, modify conclusions
Aeronautics	ОН	MA.6.5.C	and predictions, and justify new findings.
14			Use deductive thinking to construct informal
Integrating with		NAA 0 0 F	arguments to support reasoning and to justify
Aeronautics	ОН	MA.6.6.E	solutions to problems.
			Use inductive thinking to generalize a pattern of
l			observations for particular cases, make
Integrating with			conjectures, and provide supporting arguments
Aeronautics	ОН	MA.6.6.F	for conjectures.
Intro to Aeronautics			Read, construct and interpret line graphs, circle
(109-123)	ОН	MA.6.5.A.1	graphs and histograms.
			Describe the frequency distribution of a set of
			data, as shown in a histogram or frequency
			table, by general appearance or shape; e.g.,
Intro to Aeronautics			number of modes, middle of data, level of
(109-123)	ОН	MA.6.5.B.5	symmetry, outliers.
			Evaluate interpretations and conclusions as
Intro to Aeronautics			additional data are collected, modify conclusions
(109-123)	ОН	MA.6.5.C	and predictions, and justify new findings.
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Intro to Aeronautics			Select, create and use graphical representations that are appropriate for the type of data
(109-123)	ОН	MA.6.5.E.2	collected.
Scientific Method(124-			Read, construct and interpret line graphs, circle
144)	ОН	MA.6.5.A.1	graphs and histograms.
			Describe the frequency distribution of a set of
			data, as shown in a histogram or frequency
			table, by general appearance or shape; e.g.,
Scientific Method(124-			number of modes, middle of data, level of
144)	ОН	MA.6.5.B.5	symmetry, outliers.
			Evaluate interpretations and conclusions as
Scientific Method(124-			additional data are collected, modify conclusions
144)	ОН	MA.6.5.C	and predictions, and justify new findings.
		Exploring Aero	
		2003 Mathem	
Ohio Mathematics		Academic Content	Standards
Grade 7			
Activity/Lesson	State	Standards	
Activity/Lesson	State	Stanuarus	Identify and label angle parts and the regions
Fundamentals of			defined within the plane where the angle
	ОП	MA.7.3.A	resides.
Aeronautics (145-176)	ОП	IVIA.1.3.A	Represent and analyze patterns, rules and
Fundamentals of			functions with words, tables, graphs and simple
Aeronautics (145-176)	ОП	MA.7.4.B.1	variable expressions.
Actoriautics (145-170)	OH	IVIA.1.4.D. I	Represent and analyze patterns, rules and
Fundamentals of			functions with words, tables, graphs and simple
Aeronautics (145-176)	OH	MA.7.4.G.1	variable expressions.
Acionaulics (145-170)	OH	IVIA.7.4.G.1	Describe what happens to the surface area and
			volume of a three-dimensional object when the
			measurements of the object are changed; e.g.,
Wings(177-208)	ОН	MA.7.2.F.9	length of sides are doubled.
vilig5(177°200)		IVI/A. I . Z. I . 3	Identify and label angle parts and the regions
Airplane Control(209-			defined within the plane where the angle
256)	ОН	MA.7.3.A	resides.
200)	011	1017 (. 7 . 0 . 7 (Solve problems involving proportional
			relationships and scale factors; e.g., scale
Tools of			models that require unit conversions within the
Aeronautics(257-326)	ОН	MA.7.2.E.4	same measurement system.
7101011441100(201 020)	011	W/ (. / . Z. Z	Use graphing calculators or computers to
Tools of			analyze change; e.g., distance-time
Aeronautics(257-326)	ОН	MA.7.4.M.11	relationships.
			Solve problems involving proportional
			relationships and scale factors; e.g., scale
The Tools of			models that require unit conversions within the
Aeronautics	ОН	MA.7.2.E.4	same measurement system.
51511444100	J		Use graphing calculators or computers to
The Tools of			analyze change; e.g., distance-time
Aeronautics	ОН	MA.7.4.M.11	relationships.
, 10, 011441103	011	1717 1.7 . 7 . 1711 . 1 1	polationipo.

			Represent and compare numbers less than 0
			through familiar applications and extending the
The Resource Center	ОН	MA.7.1.A	number line.
			Use graphing calculators or computers to
Science of Flight	ОН	MA.7.4.M.11	analyze change; e.g., distance-time relationships.
Science of Flight	OH	IVIA.7.4.IVI.11	relationships.
			Evaluate interpretations and conclusions as
			additional data are collected, modify conclusions
Science of Flight	ОН	MA.7.5.C	and predictions, and justify new findings.
			Recognize a variety of uses for variables; e.g.,
Integrating with		MA 7 4 D 0	placeholder for an unknown quantity in an
Aeronautics	ОН	MA.7.4.D.9	equation, generalization for a pattern, formula.
Integrating with			Represent and analyze patterns, rules and functions with words, tables, graphs and simple
Aeronautics	ОН	MA.7.4.G.1	variable expressions.
7 toronautioo		100 (.7 : 1:0:1	variable expressions.
			Evaluate interpretations and conclusions as
Integrating with			additional data are collected, modify conclusions
Aeronautics	ОН	MA.7.5.C	and predictions, and justify new findings.
			Evaluate interpretations and conclusions as
Intro to Aeronautics			Evaluate interpretations and conclusions as additional data are collected, modify conclusions
(109-123)	ОН	MA.7.5.C	and predictions, and justify new findings.
(100 120)	011	1017 (.7.0.0	Analyze how decisions about graphing affect the
			graphical representation; e.g., scale, size of
Intro to Aeronautics			classes in a histogram, number of categories in
(109-123)	ОН	MA.7.5.G.2	a circle graph.
O - 1 4161 - M - 41 1/4 O 4			Construct opposing arguments based on
Scientific Method(124-144)	ОН	MA.7.5.B.4	analysis of the same data, using different graphical representations.
144)	OH	IVIA.1.3.D.4	graphical representations.
			Evaluate interpretations and conclusions as
Scientific Method(124-			additional data are collected, modify conclusions
144)	ОН	MA.7.5.C	and predictions, and justify new findings.
			Analyze how decisions about graphing affect the
Scientific Method(124-			graphical representation; e.g., scale, size of
144)	ОН	MA.7.5.E.2	classes in a histogram, number of categories in a circle graph.
144)	011	IVI (.7.O.L.2	a sinole graph.
	ı	Exploring Aero	nautics
		2003 Mathem	atics
		Academic Content	Standards
Ohio Mathematics Grade 8			
Activity/Lesson	State	Standards	
, 1011111y , 2000011		- Canada do	Solve and determine the reasonableness of the
			results for problems involving rates and derived
Fundamentals of			measurements, such as velocity and density,
Aeronautics (145-176)	ОН	MA.8.2.A.6	using formulas, models and graphs.
_ , , ,			Find the sum of the interior and exterior angles
Fundamentals of		MARSES	of regular convex polygons with and without
Aeronautics (145-176)	ΙОΠ	MA.8.2.E.8	measuring the angles with a protractor.

Fundamentals of Aeronautics (145-176)	ОН	MA.8.3.C.2	Recognize the angles formed and the relationship between the angles when two lines intersect and when parallel lines are cut by a transversal.
Fundamentals of Aeronautics (145-176)		MA.8.5.A.1	Use, create and interpret scatterplots and other types of graphs as appropriate.
Fundamentals of Aeronautics (145-176)	ОН	MA.8.5.B.2	Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants.
Fundamentals of Aeronautics (145-176)	ОН	MA.8.5.B.3	Differentiate between discrete and continuous data and appropriate ways to represent each.
Fundamentals of Aeronautics (145-176)	ОН	MA.8.5.F.9	Construct convincing arguments based on analysis of data and interpretation of graphs. Solve and determine the reasonableness of the results for problems involving rates and derived
Wings(177-208)	ОН	MA.8.2.A.6	measurements, such as velocity and density, using formulas, models and graphs.
Wings(177-208)	ОН	MA.8.2.C.9	Demonstrate understanding of the concepts of perimeter, circumference and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.)
Wings(177-208)	ОН	MA.8.2.E.10	Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision.
Wings(177-208)	ОН	MA.8.2.F.6	Solve and determine the reasonableness of the results for problems involving rates and derived measurements, such as velocity and density, using formulas, models and graphs. Estimate, compute and solve problems involving
Integrating with Aeronautics Integrating with	ОН	MA.8.1.G.6	rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions. Construct convincing arguments based on
Aeronautics	ОН	MA.8.5.F.9	analysis of data and interpretation of graphs.
Integrating with		MA 0 2 5	Apply reasoning processes and skills to construct logical verifications or counter-examples to test conjectures and to justify and
Aeronautics Intro to Aeronautics (109-123)	ОН	MA.8.6.D MA.8.5.F.9	defend algorithms and solutions. Construct convincing arguments based on analysis of data and interpretation of graphs.

Scientific Method(124-			Use, create and interpret scatterplots and other
144)	OH	MA.8.5.A.1	types of graphs as appropriate.
Scientific Method(124-144)	ОН	MA.8.5.B.2	Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants.
Scientific Method(124-			Differentiate between discrete and continuous
144)	OH	MA.8.5.B.3	data and appropriate ways to represent each.
Scientific Method(124-			Construct convincing arguments based on
144)	OH	MA.8.5.F.9	analysis of data and interpretation of graphs.